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May 29—Not much change in larvae from May 27.

May 31—I killed and preserved the large larva A, and the recently transformed adult of May 28. The gill stubs on A were very small and no longer than their width.

June 1—B has lain out of water for two days. The gill filaments are going.

June 4—B lying out of water all the time. Practicing bucco-pharyngeal respiration. Gill filaments about gone. This specimen was then killed and preserved.

It is thus apparent that *Spelerpes ruber* begins to transform in May. The time of breeding is not known to me and I can find no record of it. The animals remain active all winter in springs. At the time of transformation they are probably well over a year old, as two lots can be distinguished, 80-110 mm. long, and 50-60 mm. long. This would seem to make the duration of the larval period about two years, and would also point to a definite breeding period, probably in the spring and summer. Of course these last statements are simply conjectures.

The question of *Siren operculata* Beauvois arises here. I am of the opinion that before so well established a name as *Spelerpes ruber* be changed, it should be shown beyond the shadow of a doubt that the larva on which Beauvois founded his *operculata* is identical with the larva of *ruber*.

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NOTES ON AMBLYSTOMA TIGRINUM AT FLAGSTAFF, ARIZONA.

During the month of May, 1913, the writer had good opportunities to study this salamander at an altitude of a little under 7,000 feet.

This species was the only salamander observed in the vicinity and was found in a small stream near a lumber mill. The rocks about Flagstaff are red volcanic larva.

Both the gilled and air breathing forms were found together in the water, some of the specimens reaching a length of about six inches. The color of the gilled forms was olive brown with dark irregular spots on the back, sides, belly and tail fin. The air breathing forms were darker and less spotted. This color varied somewhat with individuals and with the surrounding temperature, the specimens becoming lighter as the air or water became warmer. The gills were not as fully developed as in many specimens which the writer has seen in captivity, and the caudal fin was not as broad. Neither did it extend up the back as far.

Several boys in the vicinity reported finding their eggs during the month of June, while the writer was absent, and secured several immature gilled specimens about two inches in length.

No land forms were found out of the water, although they may have occurred there. But as the ground is exceedingly dry in this vicinity the writer doubts whether this species is found far from water at this locality.

These salamanders were quite abundant in certain pools of the stream, as many as nine being counted in a pool about seven feet in diameter and one foot deep. They were very active and difficult to capture by hand, and generally darted to cover under some submerged plank or stone.

Several specimens of the land form, which the writer collected, are now thriving in shallow water at the Bronx Zoological Park. They feed greedily and will even snap harmlessly at one's finger.

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